

# Basic Power Supplies (300 or 600V)

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**Cat. No. BT409 & BT410**

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## INTRODUCTION

The Basic Power supply has the following Technical specifications and Characteristic features:

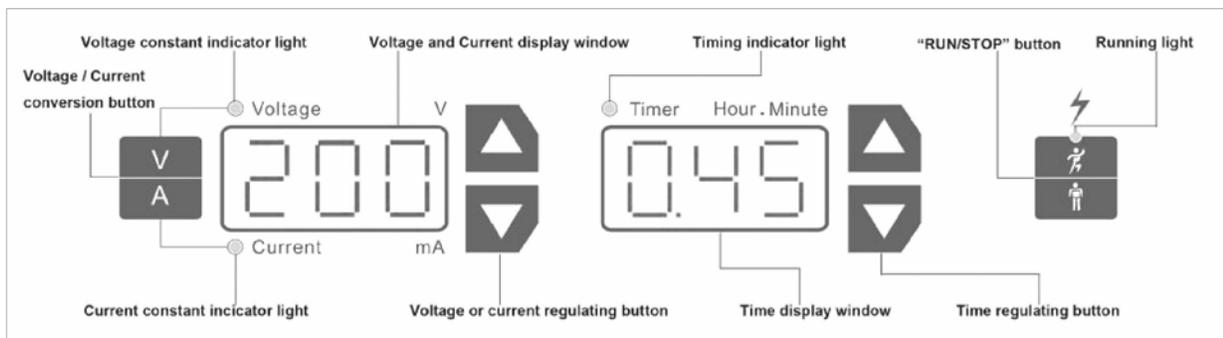
### Technical Specifications

- Type of Output: Constant-Voltage, Current
- Output range for BT409: 5-300V, 1-300mA, maximum 90W
- Output range for BT410: 5-600V, 1-200mA, maximum 120W
- Increment: 1V, 1mA
- Timer Range: 1min-9hr:59min
- Display: LED
- Output jacks: Two sets of output jacks

### Characteristic features

- Molding shell, touch keys, microprocessor intelligent control;
- With automatic memory function;
- With standard, timing operation function;
- Automatic detection of no-load, over-load.

## SETUP AND OPERATION



1. Turn on the switch after connecting with electrophoresis cell(s), the power supply will enter into the setting state. The present values of Voltage/Current and Time are the ones that left last time.
2. The Voltage/Current Display flashes. Press the "V/A" button to select constant voltage set or constant current set. If select to set constant voltage, the Voltage indicator lamp will light. If select to set constant current set, the Current indicator lamp will light.
3. The constant voltage range can be set from 5 to 300V or 600V. The constant current range can be set from 1 to 300mA or 200 mA. By pressing "▲" or "▼" button to get the value you need.  
**NOTE:** When the Voltage indicator lamp light, the current value will be automatically limited to

*the maximum. When the Current indicator lamp light, the voltage value will be automatically limited to the maximum.*

4. The Time Display will flash when press “▲” or “▼” button on the right. If the timer has been with any value, the Timer indicator lamp will light.
5. Press “▲” or “▼” button to set operating time. The range of the timer can be set from 1 mins to 9hs and 59mins. Set the time to “0.00” for there is no need for Timing.
6. Press “RUN/STOP” button to start high voltage output with the Running lamp lighting.
7. It shows the constant output value and operating time automatically.
8. It will shut down automatically when the timer gets to set-value and display “--- End” with the warning tone “Do...Do...”

**NOTE:** *Under the constant-voltage state: If the output current has reached the maximum allowable limits, the voltage value will unable to meet the pre-set constant output, and then the power supply will automatically switch to the constant-current set and display the maximum current value.*

*Under the constant-current state: If the output voltage has reached the maximum allowable limits, the current value will unable to meet the pre-set constant output, and then the power supply will automatically switch to the constant-voltage set and display the maximum voltage value.*

9. Press “STOP” button to stop the output.
10. Shut down the power.

### **EXAMPLE**

An experimental conditions for electrophoresis: “Constant voltage output 100V, Timing time 1 hour and 45 minutes”

#### **Operation steps:**

1. Turn on the Power Supply.
2. Press “V/A” button, the Voltage indicator lamp will light.
3. Press “▲” or “▼” button to set the voltage value to “100”. 4: Press “▲” or “▼” button to set the time value to “1.45”.
4. Press “RUN” button to start the high voltage output.
5. 1 hour and 45 mins later, the Power Supply will stop automatically and it displays “--- End” with the warning tone “Do...Do...”
6. Shut down the power.

## ERROR ALARM

1. If the power supply run with No-load, It will stop automatically with the warning tone “Do...Do...”, then display “Err--1”. Turn off the switch immediately.
2. If the power supply run with Over-load, It will stop automatically with the warning tone “Do...Do...”, then display “Err--2”. Turn off the switch immediately.
3. If there is something wrong with the internal circuit of power supply, It will stop automatically with the warning tone “Do...Do...”, then display “Err--3”. Then need to check or request for repair.

## WARNING



Electrophoresis power supplies use high output voltages that are electrically isolated from earth ground through a protective impedance to minimize the risk of electrical shock to the user. The following guidelines should be observed and followed when using a power supply.



Electrophoresis power supplies have passed test for operation at temperatures between 0° and 40°C, with relative humidity between 0 and 95% non-condensing. Operating the power supply outside these conditions is not recommended by our company and will void the warranty.

1. To ensure adequate cooling of the power supply, be sure that there is at least 6 cm clearance around the power supply. Do not block the fan vents at the rear of the unit.
2. Always connect the power supply to a 3-prong, grounded AC outlet, using the 3-prong AC power cord provided with the power supply.
3. Do not operate the power supply in extreme humidity (>95%) or where condensation can short the internal electrical circuits of the power supply.
4. When taking the power supply into a cold room, the unit can be operated immediately. However, when removing the power supply from the cold room, let the unit equilibrate to room temperature for a minimum of 2 hours before using it.
5. Never connect a high voltage output lead to earth ground. This defeats the floating electrical isolation of the power supply and exposes the user to potentially lethal high voltages.

## IMPORTANT

This instrument is intended for laboratory use only. This product conforms to the class A standards for Electromagnetic Emissions, intended for laboratory equipment applications. It is possible that emissions from this product may interfere with some sensitive appliances when placed nearby or on the same circuit as those appliances. The user should be aware of this potential and take appropriate measures to avoid interference.

## ENVIRONMENTAL CONDITIONS

Ensure the instrument is installed and operated strictly under the following conditions:

1. Indoor use only
2.  $\leq 95\%$  RH
3. 75-106 kPa
4. Altitude must not exceed 2000 meters
5. 4-40°C operating temperature
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to  $\pm 10\%$  of the normal voltage

## AVOIDING ELECTRICAL SHOCK

Follow the guidelines below to ensure safe operation of the unit.

The Basic Power Supply has been designed to utilize shielded wires thus minimizing any potential shock hazard to the user. BT Lab Systems recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution spilling on the instrument, it must be dried out for at least 2 hours and restored to NORMAL CONDITION before each operation.
2. Never connect or disconnect wires loading from the power jacks when the red indicator light of power switch is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads or any connected apparatus.
4. ALWAYS make sure that your hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

## AVOIDING DAMAGE TO THE INSTRUMENT

1. Do not attempt to operate the device if damage is suspected.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 6 cm of space on each side.
4. Use high level of precaution against the damages on the unit.
5. Do not operate the unit out of environmental conditions addressed above.
6. Do not operate the power supplies in high humidity environments ( $> 95\%$ ), or where condensation may occur.

7. To avoid condensation after operating the power supply in a cold room, wrap the unit in a plastic bag and allow at least 2 hours for the unit to equilibrate to room temperature before removing the bag and operating the unit.
8. Prior to applying any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to see if the proposed method will damage the equipment.

## EQUIPMENT OPERATION

Follow the guidelines below to ensure safe operation of the unit:

1. NEVER access dangerous chemicals or other materials to prevent possible hazard of explosion and damage.
2. Do not operate the unit without lids or covers to prevent possible hazards.
3. A temporary conductivity caused by condensation might occur even though this series is rated Pollution Degree 2 in accordance with IEC 664.

## WARRANTY

BT Lab Systems warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for ***one year from the shipping date to purchaser***. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. BT Lab Systems's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to BT Lab Systems within one year following the date of delivery of the product to the customer.

## TECHNICAL SUPPORT

BT Lab Systems offers technical support for all of its products. If you have any questions about the product's use or, operation, please contact BT Lab Systems at the following info.

E-Mail: [info@BTLabSystems.com](mailto:info@BTLabSystems.com)